

**WEEKLY PROGRESS UPDATE  
FOR JULY 25-31, 1997**

**EPA REGION I ADMINISTRATIVE ORDER SDWA I-97-1019  
MASSACHUSETTS MILITARY RESERVATION  
TRAINING RANGE AND IMPACT AREA**

The following summary of progress is for the period from July 25 to July 31, 1997.

**1. SUMMARY OF ACTIONS TAKEN**

UXO Survey

Ogden and CMS Environmental (the UXO contractor) continued UXO Survey work on the site during the week. A safety separation distance of 1200 feet is being used between CMS personnel engaged in UXO investigation/removal and other personnel in the Impact Area. The following roads and staging areas have been cleared by UXO removal to date:

- Wheelock Road, from the entrance to the Impact Area east to Chadwick Road.
- A drilling decontamination pad at the corner of Wheelock and Turpentine.
- Turpentine Road, from Wheelock Road to Area 3 ("Site 1 Target Area")
- Drilling location for MW-1 with a vehicle turnaround at Area 3.
- Chadwick Road, from Wheelock Road north to Barlow Road.
- the east end of Tank Alley, from Chadwick to Area 4 ("Mounds").
- Barlow Road, from Chadwick Road north to Jefferson Road.
- Wood Road, from Barlow Road west to Area 1 ("Valley").
- Spruce Swamp Road, from Wheelock Road to Pocasset-Sandwich Road.
- Pocasset-Sandwich Road, from Spruce Swamp Road north to Five Corners.
- Pocasset-Sandwich Road (Knot Hollow Road), from Five Corners north to Jefferson Road.
- Jefferson Road from Barlow to Spruce Swamp Road.
- Gravel staging area at Five Corners.
- Turpentine Road, from Five Corners south to Area 2 ("Site 3/Target Area").
- Gravel staging area at the corner of Barlow and Wood Roads.
- Gravel staging area at the corner of Wheelock and Spruce Swamp Roads.

Surface clearance activities have also been completed at sixteen drilling locations in the Impact Area, including MW-3, MW-4, MW-5, MW-6, MW-7, MW-8, MW-9, MW-11, MW-12, MW-14, MW-15, MW-25, MW-26, MW-27, MW-28, and MW-29. Downhole UXO clearance has been completed at MW-4, MW-7, MW-11, MW-12, MW-14, MW-28, and MW-29, by advancing 10-foot deep boreholes at each drilling location. UXO recovered during clearance activities are summarized in Table 1. In addition, the following areas were flagged for UXO avoidance without clearing (prior to June 25):

Area 8 (Succonsette Pond).

Access path from Spruce Swamp Road to Area 8.

Tank Alley from Turpentine Road to near Area 4 (“Mounds”)

Part of Demo Area 1

Some flags have been removed or have fallen over around Succonsette Pond. Many fresh deer tracks are visible around the pond. Portions of this area may have to be reflagged or cleared prior to sampling.

UXO present at Spruce Swamp Road, Pocasset-Sandwich Road, and drilling locations MW-1, MW-6, and MW-27 were destroyed on Friday, July 25. Some UXO are still present at Demo Area 1 from the surface clearance operations initiated in June.

### Drilling

Ogden, D.L. Maher (the drilling subcontractor), and Valeri Construction (Maher’s road building subcontractor) continued drilling and road building work on the site. TRC (EPA’s oversight contractor) and US Geological Survey were present for oversight of drilling activities. MW-14 was completed and screened at 96-106 feet below ground surface (bgs). MW-28 was completed and screened at 95-105 feet bgs. The shallow and deep wells at MW-23 were completed and screened at 118-128 bgs and 268-278 feet bgs, respectively. Bedrock was encountered at 311 feet bgs at MW-23. As of July 31 MW-10 was being drilled at 135 feet bgs using the Sonic rig, MW-29 was being drilled at 100 feet bgs using a Barber rig, and MW-7 was being drilled at 100 feet bgs using a Barber rig.

### Sampling and Analysis

Soil and groundwater samples have been analyzed or submitted for borings at MW-7, MW-14, MW-23, MW-28, and MW-29. The types of samples being analyzed, dates of submittal, and preliminary results are summarized in Table 3. All results in Table 3 are unvalidated. Concentrations of specific compounds will be presented in tabular form after the results for all samples in a sample data group are available and have been validated.

No explosive compounds have been detected in soil or groundwater samples analyzed to date by screening methods. Trihalomethanes (chloroform and dibromochloromethane) have been reported at estimated concentrations below the detection limit in groundwater profiling samples from 240 to 260 feet bgs in the MW-23 boring. Some explosives results have been delayed beyond the normal 1-day turnaround time while the laboratory resolves a potential problem with the RDX/HMX screen for soil.

### Water Level Measurements

Continuous water level recording devices were installed in three wells: LRWS-2, CS-19 (MW-7E), and CS-10 (AEHA-11). The well at CS-10 is being used because a suitable well was not available at CS-18, the original intended location. Wells at CS-18 were filled with bentonite and/or were located under standing water.

### Plans and Reports

NGB is preparing Field Sampling Plans for the remaining areas identified in the Action Plan. These areas and the status of plans are summarized in Table 2.

## **2. SUMMARY OF DATA RECEIVED**

Daily reports of UXO survey results were received by Ogden during the week and are summarized in section 1 above. Table 1 provides a summary of potential UXO discovered to date.

Laboratory results for soil and groundwater samples were received during the week and are summarized in Section 1 above. Concentrations for specific compounds will be presented in tabular form after the results for all samples in a sample data group are available and have been validated. The types of samples being analyzed, dates of submittal, and preliminary results are summarized in Table 3. All results in Table 3 are unvalidated.

Surveyed elevations were obtained for the wells used in water level measurements. These elevations are presented in Table 4 along with the water level measurements. Water level contours are indicated on Figure 1.

## **3. DELIVERABLES SUBMITTED**

Deliverables submitted during the reporting period included the following:

Weekly Progress Update (July 18-24)

July 25, 1997

## **4. SCHEDULED ACTIONS**

UXO Surveys will continue next week with UXO removal from drilling locations, and removal or flagging at soil sampling locations. Road building will continue in areas requiring drill rig access. One Barber drill rig will continue drilling the deep boring at MW-7. The Sonic drill rig will continue drilling at MW-10. One Barber drill rig will start drilling MW-12 and/or MW-11 after completing MW-29.

**Table 1**  
**Potential Explosive Ordnance Discovery**  
**Through July 31, 1997**

<b>Location</b>	<b>Object Found</b>	<b>Depth (inches)</b>	<b>Disposition</b>
Succonsette Pond, Area 8	2.36" rocket HEAT	surface	left in place
Turpentine Road	81mm mortar HE	4	relocated
	60mm mortar HE	6	relocated
	60mm mortar HE	5	relocated
	81mm mortar HE	18	relocated
MW-1 (Area 3)	105mm projectile HE	12	relocated
	105mm projectile HE	14	relocated
Spruce Swamp Road	2" HE mortar	0.5	relocated
	2" HE mortar	1.5	relocated
	2" HE mortar	2	relocated
	2" HE mortar	8	left in place
Sandwich Road	105mm projectile WP	6	left in place
MW-26 (Area 2, east side)	105mm projectile HE		relocated
	155mm projectile HE		relocated
Demo Area 1 (surface only; no intrusive clearance to date)	30mm projectile HE	surface	left in place
	30mm projectile HE	surface	left in place
	30mm projectile HE	surface	left in place
	3.5" rocket HEAT	surface	left in place
MW-27	105mm projectile HEAT	20	left in place
	105mm projectile HEAT	3	left in place
	105mm projectile HEAT	surface	left in place
MW-6	105mm projectile HEAT	6	left in place
	105mm projectile HEAT	3	left in place
	105mm projectile HE	4	relocated
	81mm mortar HE	8	relocated
	105mm projectile HEAT	3	left in place
	105mm projectile HEAT	surface	left in place
	60mm mortar HE	24	relocated
	60mm mortar HE	24	relocated
MW-29	60mm mortar HE		relocated
MW-3	155mm ejection	surface	left in place

**Table 2**  
**Summary of Sampling Areas and Field Sampling Plan Status**  
**As of July 31, 1997**

<b>Area<sup>a</sup></b>	<b>Well No. (depth)</b>	<b>Location name/Description in Action Plan</b>	<b>Sample methods/media</b>	<b>FSP status</b>
<b>1</b>	3 (S/I/D)	Area of Depression w/ Ground Scar	barber rig (soil) hand auger (soil) groundwater	final 7/18
<b>2</b>	2 (S/I/D), 26 (S)	Site 3/Target Area/Burn Area	barber rig (soil) hand auger (soil) groundwater	final 7/18 draft 7/10
<b>3</b>	1(S/I/D)	Site 1 Target Area	barber rig (soil) hand auger (soil) groundwater	final 7/18 draft 7/10
<b>4</b>	27 (S)	Site 4 Mounds	barber rig (soil) hand auger (soil) groundwater	final 7/18
<b>5</b>		Site 5	hand auger (soil)	
<b>6</b>	7 (S/I/D)	Burn Area (southeast of Turpentine)	barber rig (soil) hand auger (soil) groundwater	final 7/18
<b>7</b>	8(S)	Burn Areas (southwest of Turpentine)	barber rig (soil) hand auger (soil) groundwater	final 7/18
<b>8</b>		Succonsette Pond	sediment/surface water	
<b>9</b>	4 (S)	(well on Pocasset Road north of Five Corners)	barber rig (soil) hand auger (soil: control area) groundwater	final 7/18
<b>10</b>	5 (S/I/D)	(well north of Wood Road)	barber rig (soil) hand auger (soil: control area) groundwater	final 7/18
<b>11</b>	25 (S)	(well southeast of CS-19)	barber rig (soil) hand auger (soil: control area) groundwater	final 7/18
	6 (S)	(well north of Area 5)	barber rig (soil) groundwater	final 7/18
<b>12</b>	19 (S/D)	Demo Area 1	barber rig (soil) hand auger (soil) groundwater	final 7/18

**Table 2**  
**Summary of Sampling Areas and Field Sampling Plan Status**  
**As of July 31, 1997**

Area <sup>a</sup>	Well No. (depth)	Location name/Description in Action Plan	Sample methods/media	FSP status
13	16 (S/D)	Demo Area 2	barber rig (soil) hand auger (soil) groundwater	final 7/18
14		(access road to MW-7)	hand auger (soil: control area)	
	9 (S/I/D)	none (well southwest of CS-19)	barber rig (soil) groundwater	final 7/18
	10 (S)	none (well on west Jefferson Road)	rotosonic rig (soil) groundwater	final 7/18
	11 (S)	none (well midway along Jefferson)	barber rig (soil) groundwater	final 7/18
	12 (S)	none (well on Barlow south of Wood)	barber rig (soil) groundwater	final 7/18
	13 (S/D)	none (well near J-3 range south of Chadwick)	barber rig (soil) groundwater	final 7/18
	14 (S)	none (well at the corner of Wheelock and Turpentine)	barber rig (soil) groundwater	final 7/18
	15 (S/D)	none (well at the corner of Spruce Swamp and Sandwich)	barber rig (soil) groundwater	final 7/18
15		Site 6	hand auger (soil)	
	28 (S)	none (well at corner of Wheelock and Chadwick)	barber rig (soil) groundwater	final 7/18
	29 (S)	none (well at the corner of Barlow and Chadwick)	barber rig (soil) groundwater	final 7/18
	17 (S/D)	none (well southeast of Demo-2)	rotosonic rig (soil) groundwater	final 7/18
	18 (S/I/D)	none (well on east end of Gibbs)	rotosonic rig (soil) groundwater	final 7/18
	20 (S)	none (well on west end of Pocasset Forestdale)	rotosonic rig (soil) groundwater	final 7/18
	21 (S/D)	none (well on south end of Burgoyne)	rotosonic rig (soil) groundwater	final 7/18

**Table 2**  
**Summary of Sampling Areas and Field Sampling Plan Status**  
**As of July 31, 1997**

Area <sup>a</sup>	Well No. (depth)	Location name/Description in Action Plan	Sample methods/media	FSP status
	22 (S)	none (well midway on Burgoyne)	rotosonic rig (soil) groundwater	final 7/18
	23 (S/I/D)	none (well north end of Burgoyne)	rotosonic rig (soil) groundwater	final 7/18
	24 (S)	none (well near Rod & Gun Club)	rotosonic rig (soil) groundwater	final 7/18
16		GP-9 (High-use gun position)	hand auger (soil)	
17		Mixed-use gun position	hand auger (soil)	
18		Low-use gun position	hand auger (soil)	
19		High-use mortar position	hand auger (soil)	
20		Mixed-use mortar position	hand auger (soil)	
21		Low-use mortar position	hand auger (soil)	
22		Control area near mortar positions	hand auger (soil: control)	
23		Drainage swale (N of Snake Pd.)	hand auger (soil)	
24		Drainage swale (NW of Snake Pd.)	hand auger (soil)	
25		Rod & Gun Club pond	sediment/surface water	
26		Deep Bottom Pond	sediment/surface water	
27		Round Swamp	sediment/surface water	
28		Grassy Pond	sediment/surface water	
29		Ox Pond	sediment/surface water	
30		Donnelly Pond	sediment/surface water	
31		Little Halfway Pond	sediment/surface water	
32		Raccoon Swamp/Pond	sediment/surface water (control)	
33		Snake Pond	sediment/surface water	
34		Bailey's Pond	sediment/surface water	
35		Gibbs Pond	sediment/surface water	

**Table 2**  
**Summary of Sampling Areas and Field Sampling Plan Status**  
**As of July 31, 1997**

<b>Area<sup>a</sup></b>	<b>Well No. (depth)</b>	<b>Location name/Description in Action Plan</b>	<b>Sample methods/media</b>	<b>FSP status</b>
36		Opening Pond	sediment/surface water	
37		Bypass Bog	sediment/surface water	
38		Control area near gun positions	hand auger (soil: control)	
Notes: (a) Boring sampling locations do not have unique area numbers				



**Table 3**  
**Summary of Preliminary Analytical Results (not validated)**  
**As of July 31, 1997**

Boring	Sample Type	Explosives	Inorganics	Other Analytes
MW-14	Soil: 0.5 feet	7/30	7/30	7/30
	Soil: 10 feet	ND <sup>s</sup>	7/22	7/22
	Soil: 20 feet	ND <sup>s</sup>	7/23	
	Soil: 30, 40, 50, 60, 70, 80, 90 feet	ND <sup>s</sup>	7/23-24	
MW-23	Soil: 40 feet			7/22
	Soil: 70 feet			7/23
	Groundwater: 140, 150, 160, 170, 180, 190, 200, 210	ND <sup>s</sup>		7/24 (V)
	Groundwater: 220	ND <sup>s</sup>		ND (V)
	Groundwater: 230	ND <sup>s</sup>		7/26 (V*)
	Groundwater: 240, 250, 260	ND <sup>s</sup>		THM
	Groundwater: 270, 280	ND <sup>s</sup>		7/29
MW-28	Soil: 0.5 feet	7/30	7/30	7/30
	Soil: 10 feet	7/29	7/29	7/29
	Soil: 20 feet	7/29	7/29	
	Soil: 30, 40, 50, 60, 70, 80, 90 feet		7/29-30	
	Soil: 100 feet		7/30	7/30
MW-7	Soil: 0.5 feet	7/30	7/30	7/30
	Soil: 10 feet	7/30	7/30	7/30
	Soil: 20 feet	7/30	7/30	
	Soil: 30, 40, 50, 60, 70, 80, 90, 100 feet		7/30-31	
MW-29	Soil: 0.5 feet	7/31	7/31	7/31
	Soil: 10 feet	7/31	7/31	7/31
	Soil: 20 feet	7/31	7/31	
	Soil: 30 feet		7/31	
	Soil: 40 feet		7/31	7/31

**Table 3**  
**Summary of Preliminary Analytical Results (not validated)**  
**As of July 31, 1997**

	Soil: 50, 60, 70, 80, 90, 100 feet		7/31	
Notes: 7/22 = date sample received for analysis ND = not detected <sup>s</sup> = result from screening method (colorimetric for soil or high-level 8330 for groundwater) (V) = analyzed for volatile organic compounds; * = expedited (5-day TAT) THM = trihalomethanes				

Table 4. Camp Edwards Impact Area							
Groundwater Quality Study							
Synoptic Water Level Measurement							
27-Jun-97							
Site Location	Wells Number	Time	Water Level	Measurement Point	TOC Elevation	Water Elevation	Notes
LRWS							
	S1-MW2	1100	7.6	metal casing	55.66	48.06	
	S2-02	1250	34.32	metal casing	81.56	47.24	
	S3-04	1114	18.34	metal casing			No TOC Elevation
	S4						Not Located
	S5						Not Located
	S6-01	900	56.55	metal casing	128.14	71.59	
	S6-02	905	56.94	metal casing	128.15	71.21	
	S8-04	1233	49.62	metal casing	102.17	52.55	
	S10-01	1259	10.09	metal casing	59.52	49.43	
	95-6	1200	70.48	PVC			No TOC Elevation
	95-15	1229	69.23	PVC			No TOC Elevation
USGS							
	SDW261	1339	138.56	Metal	200.77	62.21	
	BHW27	1159	4.00	Metal casing	72.4	68.4	
CS-18							
	MWV-1	1117	78.2	PVC	147.91	69.71	Bentonite in road box
	MWV-2						Well not found
	MWV-3						Bentonite in well
	MWV-4						Bentonite in well
CS-19							
	MWV0005E	1329	116.74	PVC	186.16	69.42	
	MWV0006E	1336	112.62	PVC	181.93	69.31	
	MWV0007E	1345	132.28	PVC	198.43	66.15	
	MWV0008E	1350	122.18	PVC	188.92	66.74	
FS-12							
	WT-13	939	92.32	PVC	163.1	70.78	
	WT-10	1010	81.45	PVC	152.4	70.95	
	GMWV-23	945	85.13	PVC	154.9	69.77	
	WT-5	1045	48.91	PVC	118.3	69.39	
CS-10							
	MWV-122A	1230	82.94	PVC	153.6	70.66	
USGS CS-1							
	WT-711	918	106.44	PVC	176.5	70.06	
	WT-712	912	114.79	PVC	184.5	69.71	
	MWV-7	902	114.65	PVC	184.4	69.75	
FS-14							
	MWV-1	1147	151.18	PVC	210.29	59.11	
	MWV-2	1157	164.88	PVC	222.71	57.83	
	MWV-3	1154	157.77	PVC	216.61	58.84	
	MWV-4	1135	151.89	PVC	210.95	59.06	



